



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,369	09/08/2003	Vitalii Ivanovich Silin		8252
7590 08/19/2004				
Vitalii Silin 12415 Milestone Manor Lane Germantown, MD 20876		EXAMINER YANG, NELSON C		
		ART UNIT PAPER NUMBER		
		1641		

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,369	SILIN, VITALII IVANOVICH	
	Examiner	Art Unit	
	Nelson Yang	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/6/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

I. Applicant's amendment of claim 1 is acknowledged and has been entered.

1. Currently claims 1-6 are pending.

Rejections Withdrawn

II. Applicant's IDS, filed May 16, 2004, in response to the objection to the IDS has been fully considered and is persuasive. The objection of the IDS has been withdrawn.

Claim Rejections - 35 USC § 102

III. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Dupont-Filliard et al [Dupont-Filliard et al, Reversible oligonucleotide immobilization based on biotinylated polypyrrole film, 2001, Anal Chim Acta, 449, 45-50].

With respect to claim 1, Dupont-Filliard et al teach DNA sensors comprising a support with ODN-biotin (binding molecule) - a biotinylated oligonucleotide, ODNc-biotin (instigator) - a biotinylated single stranded DNA complement to the ODN-biotin, where the biotin binds to streptavidin (protein) (p.46, col.2).

3. With respect to claim 2, as can be seen in fig. 1 (p.46), at least two of the ODN-biotin are adjacent to each other (fig.1, p.46).

Claim Rejections - 35 USC § 103

Art Unit: 1641

IV. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont-Filliard et al [Dupont-Filliard et al, Reversible oligonucleotide immobilization based on biotinylated polypyrrole film, 2001, Anal Chim Acta, 449, 45-50] in view of Corn et al [US 6,127,129 B1].

With respect to claim 3, Dupont-Filliard et al teach binding molecules on a substrate surface, as disclosed above. Dupont-Filliard et al fail to teach border regions on the substrate surface.

Corn et al et al however, teach a background (borders) that is resistant to the non-specific binding of proteins (column 9, lines 61-66, fig. 1). Corn et al further teach that this is critical that the array background prohibit the non-specific adsorption of protein molecules, as significant amounts of such non-specific binding obscures the measurement of small amounts of protein binding at specific array locations (column 10, lines 1-8).

Therefore it would have been obvious in the sensor of Dupont-Filliard et al to have a background that prohibits the non-specific adsorption of protein molecules, as suggested by Corn et al, in order to prevent the measurement of small amounts of protein binding at specific array locations from being adsorbed.

5. With respect to claims 4, 6, Corn et al teach that the background is comprised of PEG-NHS which is hydrophilic (column 3, lines 50-55).

Art Unit: 1641

6. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont-Filliard et al [Dupont-Filliard et al, Reversible oligonucleotide immobilization based on biotinylated polypyrrole film, 2001, Anal Chim Acta, 449, 45-50] in view of Wagner et al [US 2002/0119579].

With respect to claims 3-5, Dupont-Filliard et al teach binding molecules on a substrate surface, as disclosed above. Dupont-Filliard et al fail to teach border regions on the substrate surface.

Wagner et al, however, teach border regions comprising hydrophobic borders (pg. 0104) in order to constrain the fluids wholly or partly within the immobilization region. Wagner et al further teach that the border regions are convertible to hydrophilic regions (pg 0104).

Therefore, it would have been obvious in the sensor of Dupont-Filliard et al, to have hydrophobic border regions, as suggested by Wagner et al, in order to constrain solutions containing the streptavidin being detected, to the immobilization regions containing the ODN-biotin and ODNC-biotin molecules.

Response to Arguments

V. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

VI. No claims are allowed.

Art Unit: 1641

7. The following references are also cited as art of interest: Bulyk et al [Bulyk et al, Quantifying DNA-protein interactions by double-stranded DNA arrays, 1999, Nat Biotech, 17, 573-577] teach double stranded DNA arrays that interact with proteins.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

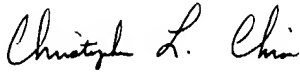
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1641

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson Yang
Patent Examiner
Art Unit 1641


CHRISTOPHER L. CHIN
PRIMARY EXAMINER
GROUP ~~1800~~ 1641
8/16/04